

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A ~~semiconductor~~ transistor device structure formed on a substrate, the substrate defining a substantially horizontal plane, the semiconductor device structure comprising:

a source region;

a drain region;

a gate electrode disposed on the substrate, said gate electrode positioned vertically between said source region and said drain region; and

a plurality of semiconducting nanotubes, each of said semiconducting nanotubes including a first end electrically coupled with said source region, a second end electrically coupled with said drain region, and a channel region extending vertically through said gate electrode between said source region and said drain region, ~~said channel region being electrically insulated from said gate electrode~~, and said gate electrode configured to receive a control voltage effective to regulate current flow through said channel region between said source region and said drain region.

2. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 wherein said source is composed of a catalyst material effective for growing said semiconducting nanotubes.

3. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 wherein said drain is composed of a catalyst material effective for growing said semiconducting nanotubes.

4. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 further comprising:

an insulating layer disposed between said drain and said gate electrode ~~for electrically isolating said drain from said gate electrode.~~

5. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 further comprising:

an insulating layer disposed between said source and said gate electrode ~~for electrically isolating said source from said gate electrode.~~

6. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 wherein said semiconducting nanotubes are composed of arranged carbon atoms.

7. (Cancelled)

8. (Currently Amended) The ~~semiconductor~~ transistor device structure of claim 1 wherein said semiconducting nanotubes are oriented substantially perpendicular to said horizontal plane.

9-24. (Cancelled)

25. (Currently Amended) A ~~semiconductor~~ capacitor device structure formed on a substrate, the ~~semiconductor~~ capacitor device structure comprising:

an electrically-conductive first plate on the substrate;

an electrically-conductive second plate disposed vertically above said first plate;

an electrically-conductive layer disposed between said first and second plates;

a plurality of nanotubes, each of said nanotubes having a first end electrically coupled with said first plate for increasing an effective area of said first plate and a second end, and each of said nanotubes extending vertically through said electrically-conductive layer from said first plate toward said second plate; and

a plurality of dielectric layers, each of said plurality of dielectric layers having a first portion disposed between a respective one of said nanotubes and said electrically-conductive layer, and each of said plurality of dielectric layers having a second portion disposed between the respective one of said nanotubes and said second plate such that the second portion separates the respective one of said nanotubes from said second plate.

26. (Currently Amended) The ~~semiconductor~~ capacitor device structure of claim 25 wherein said nanotubes have a conducting molecular structure.

27. (Currently Amended) The ~~semiconductor~~ capacitor device structure of claim 25 wherein said nanotubes have a semiconducting molecular structure.

28. (Currently Amended) The ~~semiconductor~~ capacitor device structure of claim 25 wherein each of said dielectric layers comprises a shell that encases ~~the~~ the respective one of said nanotubes.

29-34. (Cancelled)